CLAIMS

What is claimed is:

1. In a fuel injector assembly, for dispensing fuel in the combustion chamber of a gas turbine engine, having a contoured outer housing, attached on one end to an engine casing, fully enveloping a contoured flexible fuel feed, fixedly attached at one end thereof to a housing inlet and having a nozzle assembly operatively connected therewith at another end, attached at a housing outlet end, said fuel feed being otherwise separated from said housing by a peripheral insulating space, wherein the improvement comprises:

a. said housing outlet end having a first contoured surface portion; and

b. said nozzle assembly including a movable nozzle spray-tip having a second contoured surface portion in complementary mating engagement with said housing first contoured surface portion, resulting in sliding relative motion therebetween upon the operation of said gas turbine engine, as a result of the thermal expansion differential arising due to the differing temperatures of said housing and said fuel feed.

2. The improved fuel injector assembly of claim 1, wherein said first and second contoured surface portions are interior and exterior contoured surfaces, respectively.

3. The improved fuel injector assembly of claim 1, wherein said first and second contoured surface portions are exterior and interior surfaces, respectively.

4. The improved fuel injector assembly of claim 2, wherein said contoured surface portions are curved.

5. The improved fuel injector assembly of claim 3, wherein said contoured surface portions are curved.

6. The improved fuel injector assembly of claim 2, wherein each of said contoured surface portions includes at least a portion of a spherical surface component.

7. The improved fuel injector assembly of claim 3, wherein each of said contoured surface portions includes at least a portion of a spherical surface component.

8. The improved fuel injector assembly of claim 1, wherein said housing outlet end further includes a shroud, with said shroud including said first contoured surface portion.

9. The improved fuel injector assembly of claim 8, wherein said contoured surface portions include a curved portion.

10. The improved fuel injector assembly of claim 8, wherein each of said contoured surface portions includes at least a partly spherical surface component.

11. The improved fuel injector assembly of claim 8, wherein said housing outlet end further includes an adaptor member, interposed between said housing outlet end and said shroud, said adaptor member including a further contoured surface portion.

12. The improved fuel injector assembly of claim 11, wherein said nozzle spray-tip exterior surface portion is in complementary mating engagement with both of said first and further contoured surface portions.

13. The improved fuel injector assembly of claim 12, wherein said first and further contoured surface portions are also axially movable relative to each other.

14. The improved fuel injector assembly of claim 12, wherein each of said contoured surface portions includes at least a portion of a spherical surface component.

15. In a fuel injector assembly, for dispensing fuel in the combustion chamber of a gas turbine engine, having a shaped outer housing, attached at one end to an engine casing, fully enveloping a shaped flexible fuel feed line, affixed at one end thereof to a housing inlet and having a nozzle assembly operatively connected therewith at another end, affixed to a housing outlet end via a shroud and an intermediate adaptor member, said fuel feed line being otherwise separated from said housing by a surrounding insulating, space, wherein the improvement comprises:

a. said shroud and said adaptor member both including spaced first and second contoured surface portions, respectively; and

b. said nozzle assembly including a movable, elastically deformable, nozzle spray-tip, having a third contoured surface portion mating with both said first and second contoured surface portions, resulting in pivotal relative motion therebetween upon the operation of said gas turbine engine, as a result of the thermal expansion differential arising from the differing temperatures of said housing and said fuel feed line.

16. The improved fuel injector assembly of claim 15, wherein each of said contoured surface portions is curved.

17. The improved fuel injector assembly of claim 15, wherein each of said contoured surface portions includes at least a portion of a spherical surface component.

18. The improved fuel injector assembly of claim 17, wherein said first and second interior spherical surface components are also axially movable relative to each other.

19. An improved fuel injector assembly, for use in an internal combustion engine, including a curved outer housing, fixedly retained on one end at an engine casing, fully enclosing a curved flexible fuel feed member, said flexible feed member being affixed at an outer end to a housing inlet end and having a nozzle assembly operatively connected

therewith at an inner end thereof, said nozzle assembly being yieldingly attached at a housing outlet end, said fuel feed member being otherwise spaced from said housing via a peripheral insulating space, said improvement comprising:

a. said housing outlet end including at least one shaped surface portion; and

b. said nozzle assembly including a movable nozzle spray-tip having another shaped surface portion complementarily matingly conforming with and being in contact with said at least one shaped surface portion, resulting in relative motion therebetween upon the operation of said external combustion engine, as a result of the thermal expansion differential arising due to the differing temperatures of said housing and said fuel feed member.

20. The improved fuel injector assembly of claim 19, wherein each of said shaped surface portions is at least partially curved.

21. The improved fuel injector assembly of claim 20, wherein said at least one curved surface portion is an interior surface portions and said another curved surface portion is an exterior surface portion.

22. The improved fuel injector assembly of claim 20, wherein said at least one curved surface portion is an exterior surface portion and said another curved surface portion is an interior surface portion.

23. The improved fuel injector assembly of claim 20, wherein at least one of said curved surface portions includes at least a portion of a spherical surface component.

24. The improved fuel injector assembly of claim 23, wherein at least one of said spherical surface components is one of an interior and exterior surface component and said another spherical surface component is one of an exterior and interior surface component, respectively.

25. The improved fuel injector assembly of claim 20, wherein said at least one curved surface portion includes a second curved surface portion, with said at least one and second curved surface portions also being axially movable relative to each other.